DOCUMENT RESUME

ED 378 725 EC 303 621

AUTHOR Waterman, Betsy B.
TITLE Assessing Children for the Presence of a Disability.
INSTITUTION Academy for Educational Development, Inc., Washington, D.C.; National Information Center for Children and Youth with Disabilities, Washington, DC.
SPONS AGENCY Special Education Programs (ED/OSERS), Washington, DC.
PUB DATE 94
CONTRACT H030A30003
NOTE 29p.; For related bibliographies, see EC 303 622-623.
AVAILABLE FROM National Information Center for Children and Youth with Disabilities, P.O. Box 1492, Washington, DC 20013-1492 (single copy free).
PUB TYPE Collected Works - Serials (022) -- Guides - Non-Classroom Use (055)
JOURNAL CIT NICHCY News Digest; v4 n1 1994

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Clinical Diagnosis; Compliance (Legal); Cultural Differences; Definitions; Diagnostic Tests; *Disabilities; *Disability Identification; Educational Diagnosis; Educational Legislation; Elementary Secondary Education; *Evaluation Methods; Federal Legislation; Limited English Speaking; Parent Role; *Student Evaluation; Testing

ABSTRACT

This newsletter issue focuses on the assessment of school-aged children to: (1) determine if a child has a disability and is eligible for special services, and (2) provide information that can drive educational programming. Section 1 is an introduction which addresses a definition of assessment, how students are identified for assessment, federal law requirements, and the federal disability categories. Section 2 briefly describes the following sources of information: school records, student work, prereferral procedures, observational techniques, interviews, testing, ecological assessment, direct assessment, dynamic assessment, task analysis, outcome-based assessment, and learning styles assessment. Section 3 then considers the parents' role in the assessment process, including before, during, and after the evaluation. The fourth section offers guidelines for assessing students who are culturally and linguistically diverse. Section 5 looks at the primary areas of assessment including intelligence, language, perceptual abilities, academic achievement, and behavior and emotional/social development. The final section addresses interpretation of the results of such a comprehensive evaluation and focuses on the Independent Education Evaluation and the Individualized Education Program meeting. A list of relevant organizations and publishers completes the issue. (Contains 49 references.) (DB)

ED 378 725

Volume 4, Number 1, 1994

NEWS DIGEST

Assessing Children for the Presence of a Disability

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by Betsy B. Waterman, Ph.D.
State University of New York at Oswego

The Individuals with Disabilities Education Act (IDEA), Public Law 101-476, lists 13 separate categories of disabilities under which children may be eligible for special education and related services. To determine if a child is eligible for classification under one of these areas of exceptionality, an evaluation, or assessment, of the child must be conducted. Every year, millions of children, ages 3 and up, are assessed for the presence of a disability and are found eligible for special education and related services because they are in need of support in order to achieve success in school.

This ***News Digest*** focuses upon the assessment process — the ways and primary skill areas in which school systems collect information in order to determine if a child is eligible for special education and related services and to make informed decisions about that child's educational placement and instruction. By law, this process must involve much more than just giving the student a standardized test in the area of his or her suspected disability. Valuable information about the student's skills and needs can come from many sources, including parents, teachers, and specialists, and by using a variety of assessment approaches, such as observations, interviews, testing, and methods such as dynamic assessment or ecological assessment. In this way, a comprehensive picture of the student can be obtained and used to guide eligibility decisions and educational programming.

In this issue, we describe what federal law requires in terms of assessing school-aged children with disabilities and explore what thorough assessment involves. The various skill areas in which children are often assessed—intelligence, language, perception, achievement, and behavioral and emotional/social development—are described, so that readers may gain an understanding of how a child's abilities and disabilities in each skill area contribute to his or her learning and educational performance. The issue concludes with an extensive reference list and a brief list of organizations that may be able to provide information on the assessment of specific disabilities. Two, more extensive bibliographies of additional resources on assessment—one for families and one for schools—are available separately from NICHCY upon request.

In This Issue:

I: Introduction to Assessment 2
II: Methods of Gathering Information 4
III: Parents' Role in the Assessment Process .. 12
IV: Assessing Students Who Are Culturally and Linguistically Diverse 13
V: Primary Areas of Assessment 14
VI: Putting It All Together: Interpreting Results 22
Summary 24
References 24
List of Publishers 27

EC 303 621

Section One:
INTRODUCTION TO ASSESSMENT

Stacey is in danger of failing second grade again. She appears to have difficulty following directions, completing assignments on time, progressing in reading and spelling, and interacting with her peers. Her teacher believes that Stacey may have a learning disability and has made a referral to the Committee on Special Education.

Joe has spina bifida and uses a wheelchair. He has recently moved into the community and enrolled in the local high school. His parents are concerned that Joe is not developing the mobility and daily living skills that he needs now and in the future. They request that the new school system evaluate Joe to identify his special needs.

Bob has become severely withdrawn in the last year. His grades have been declining steadily, he is starting to skip school, and when the teacher calls on him in class, he responds rudely or not at all. The teacher is worried that Bob may have an emotional disorder. She makes a referral to the special education department.

While these children are different from each other in very many ways, they may also share something in common. Each may be a student who has a disability that will require special education services in the school setting. Before decisions may be made about what those special education services will be, each child will require an evaluation conducted by specially trained educational personnel, which may include a school psychologist, a speech/language pathologist, special education and regular education teachers, social workers, and, when appropriate, medical personnel. This is true for any child suspected of having a disability.

Assessment in educational settings serves five primary purposes:

- *screening and identification:* to screen children and identify those who may be experiencing delays or learning problems;
- *eligibility and diagnosis:* to determine whether a child has a disability and is eligible for special education services, and to diagnose the specific nature of the student's problems or disability;
- *IEP development and placement:* to provide detailed information so that an Individualized Education Program (IEP) may be developed and appropriate decisions may be made about the child's educational placement;
- *instructional planning:* to develop and plan instruction appropriate to the child's special needs; and
- *evaluation:* to evaluate student progress. (Berdine & Meyer, 1987, p. 5)

This ***News Digest*** focuses upon the assessment process for determining if a child is eligible for special education and related services and for diagnosing the nature of his or her special needs. In Section One, a definition of assessment is presented, along with a brief discussion of what the IDEA mandates in terms of assessment. Section Two provides an overview of some of the methods used to gather information about a child with a suspected disability (e.g., reviewing school records, observations, interviews, standardized tests, curriculum-based assessment). In Section Three, the parents' role in the assessment process is briefly discussed. Section Four provides an overview to the issues associated with assessing students who are culturally or linguistically diverse. Section Five addresses in detail the various skill areas that are typically the focus of assessment. These are: intelligence, language, perception, achievement, and behavioral and emotional/social development. In Section Six, interpretation of results is discussed. This ***News Digest*** concludes with the reference listing of readings on assessment. More extensive NICHCY bibliographies on assessment are available separately upon request.

Defining Assessment

There is sometimes confusion regarding the terms "assessment" and "testing." While they are related, they are not synonymous. ***Testing*** is the administration of specifically designed and often standardized educational and psychological measures of behavior and is a part of the assessment process. ***Assessment***, also known as evaluation, can be seen as a problem-solving process (Swanson & Watson, 1989) that involves many ways of collecting information about the student. Roth-Smith (1991) suggests that this information-gathering process involves:

- observing the student's interactions with parents, teachers, and peers;
- interviewing the student and significant others in his or her life;
- examining school records and past evaluation results;
- evaluating developmental and medical histories;
- using information from checklists completed by parents, teachers, or the student;
- evaluating curriculum requirements and options;
- evaluating the student's type and rate of learning during trial teaching periods;
- using task analysis to identify which task components already have been mastered and in what order unmastered skills need to be taught; and
- collecting ratings on teacher attitude towards students with disabilities, peer acceptance, and classroom climate. (Roth-Smith, 1991, p. 307)

Clearly, gathering information about the student using such a variety of techniques and information sources can be expected to shed considerable light upon the student's strengths and needs, the nature of his or her disability and how it affects educational performance, and what type of instructional goals and objectives should be established for the student. More detail about many of these methods of collecting information about the student will be presented throughout this ***News Digest.***

How Students Are Identified for Assessment

There are at least two ways in which a student may be identified for assessment.

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The first is that the school suspects the presence of a learning or behavior problem and asks the student's parents for permission to evaluate the student individually. Schools routinely give tests to all students in a particular grade; when a student scores too far below his or her peers, this alerts the school to a potential problem. Alternatively, the student's classroom teacher may identify that a problem exists—perhaps the student's work is below expectations for his or her grade or age, or the student's behavior is disrupting learning—and so the teacher refers the student for assessment.

The student's parents may also call or write to the school or to the director of special education and request that their child be evaluated. They may feel that the child is not progressing as he or she should be, or notice particular problems in how the child learns. If the school suspects that the child, indeed, may have a disability, then the school must conduct an assessment.

If school personnel do not feel that the child has a disability, they may refuse to assess the child, but must inform the parents in writing as to their reasons for refusing. If parents feel strongly that their child does, indeed, have a disability that requires special education, they may request a due process hearing, where they will have the opportunity to show why they feel their child should be evaluated. Due process proceedings are beyond the scope of this ***News Digest;*** more information about parents' due process rights is available in another NICHCY publication: *Questions and Answers About the Individuals with Disabilities Education Act.*

About the Author

Dr. Betsy Waterman is currently an assistant professor at SUNY Oswego, in Oswego, New York, where she teaches in the Counseling and Psychological Services Department. In this capacity, she helps train school psychologists and counselors.

Dr. Waterman has worked in the area of special education for over 17 years. She also conducts research in the special education field, particularly as it relates to the cognitive functioning of students with reading disabilities. She frequently presents workshops on special education topics to educators and parents in the central New York area.

Assessment and Federal Law

The Individuals with Disabilities Education Act (IDEA), Public Law 101-476, lists 13 separate categories of disabilities under which children may be eligible for special education and related services. These are presented in the box below. To determine if a child is eligible for classification under one of these areas of exceptionality, an individualized evaluation, or assessment, of the child must be conducted.

The IDEA specifies a number of requirements regarding evaluations of children suspected of having a disability. While a more complete description of these requirements is available in NICHCY's *Questions and Answers About the Individuals with Disabilities Education Act,* these requirements are briefly summarized as follows:

- Before a child is evaluated for the first time, the school district must notify parents in writing. Parents must give

Federal Disability Categories

■ **autism:** a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3;

■ **deafness:** a hearing impairment that is so severe that the child is impaired in processing linguistic information, with or without amplification;

■ **deaf-blindness:** simultaneous hearing and visual impairments;

■ **hearing impairment:** an impairment in hearing, whether permanent or fluctuating;

■ **mental retardation:** significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior;

■ **multiple disabilities:** the manifestation of two or more disabilities (such as mental retardation-blindness), the combination of which requires special accommodation for maximal learning;

■ **orthopedic impairment:** physical disabilities, including congenital impairments, impairments caused by disease, and impairments from other causes;

■ **other health impairment:** having limited strength, vitality, or alertness due to chronic or acute health problems;

■ **serious emotional disturbance:** a disability where a child of typical intelligence has difficulty, over time and to a marked degree, building satisfactory interpersonal relationships; responds inappropriately behaviorally or emotionally under normal circumstances; demonstrates a pervasive mood of unhappiness; or has a tendency to develop physical symptoms or fears;

■ **specific learning disability:** a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations;

■ **speech or language impairment:** a communication disorder such as stuttering, impaired articulation, a language impairment, or a voice impairment;

■ **traumatic brain injury:** an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both;

■ **visual impairment:** a visual difficulty (including blindness) that, even with correction, adversely affects a child's educational performance.

written permission for the school system to conduct this first evaluation (known as a preplacement evaluation).

- Evaluations must be conducted by a multidisciplinary team (e.g., speech and language pathologist, occupational or physical therapist, medical specialists, school psychologist) and must include at least one teacher or specialist who is knowledgeable about the area of the child's suspected disability.
- The assessment must thoroughly investigate all areas related to the child's suspected disability.
- No single procedure may be used as the sole criterion for determining a child's eligibility for special services or for determining his or her appropriate educational placement. Rather, the evaluation process must utilize a variety of valid assessment instruments and observational data.
- All testing must be done individually.
- Tests and other evaluation materials must be provided in the child's primary language or mode of communication, unless it is clearly not feasible to do so.
- All tests and other evaluation materials must be validated for the specific purpose for which they are used. This means that a test may not be used to assess a student in a particular area (e.g., intelligence) unless the test has been designed and validated through research as measuring that specific area.
- Assessments must be conducted in a nondiscriminatory way. This means that the tests and evaluation materials and procedures that are used may not be racially or culturally discriminatory (biased) against the child.
- The evaluation team must ensure that any test used is administered appropriately by a person trained to do so, that the test is being used for the purposes for which it was designed, and that the child's disability does not interfere with the child's ability to take any test measuring specific abilities (e.g., the child's visual impairment affects his or her ability to read and correctly answer the questions on an achievement test). [34 CFR §§300.530—300.532]

Appropriately, comprehensively, and accurately assessing a child with a suspected disability clearly presents a significant challenge to the assessment team.

Section Two: METHODS OF GATHERING INFORMATION

One of the cornerstones of the IDEA's evaluation requirements is that it is inappropriate and unacceptable to base any eligibility or placement decision upon the results of only one procedure [34 *Code of Federal Regulations* (CFR) §300.532(d)]. The child must be assessed "in all areas related to the suspected disability, including, if appropriate, health, vision, hearing, social and emotional status, general intelligence, academic performance, communicative status, and motor abilities" [34 CFR §300.532(f)].

Because of the convenient and plentiful nature of standardized tests, it is perhaps tempting to administer a battery (group) of tests to a student and make an eligibility or placement determination based upon the results. However, tests alone will not give a comprehensive picture of how a child performs or what he or she knows or does not know. Evaluators need to use a variety of tools and approaches to assess a child, including *observing* the child in different settings to see how he or she functions in those environments, *interviewing* individuals who know the child to gain their insights, and *testing* the child to evaluate his or her competence in whatever skill areas appear affected by the suspected disability, as well as those that may be areas of strength. There are, recently, a number of other approaches being used to collect information about students as well; these include curriculum-based assessment, ecological assessment, task analysis, dynamic assessment, and assessment of learning style. These approaches yield rich information about students, are especially important when assessing students who are from culturally or linguistically diverse backgrounds, and, therefore, are critical methods in the overall approach to assessment. Students possessing medical or mental health problems may also have assessment information from sources outside of the school. Such information would need to be considered along with assessment information from the school's evaluation team in making appropriate diagnoses, placement decisions, and instructional plans.

Only through collecting data through a variety of approaches (observations, interviews, tests, curriculum-based assessment, and so on) and from a variety of sources (parents, teachers, specialists, peers, student) can an adequate picture be obtained of the child's strengths and weaknesses. Synthesized, this information can be used to determine the specific nature of the child's special needs, whether the child needs special services and, if so, to design an appropriate program.

Reviewing School Records

School records can be a rich source of information about the student and his or her background. The number of times the student has changed schools may be of interest; frequent *school changes* can be disruptive emotionally as well as academically and may be a factor in the problems that have resulted in the student's being referred for assessment. *Attendance* is another area to note; are there patterns in absences (e.g., during a specific part of the year, as is the case with some students who have respiratory problems or allergies), or is there a noticeable pattern of declining attendance, which may be linked to a decline in motivation, an undiagnosed health problem, or a change within the family?

The student's past history of *grades* is usually of interest to the assessment team as well. Is the student's current performance in a particular subject typical of the student, or is the problem being observed

something new? Are patterns noticeable in the student's grades? For example, many students begin the year with poor grades and then show gradual improvement as they get back into the swing of school. For others, the reverse may be true: During the early part of the year, when prior school material is being reviewed, they may do well, with declines in their grades coming as new material is introduced. Also, transition points such as beginning the fourth grade or middle school may cause students problems; the nature and purpose of reading, for example, tends to change when students enter the fourth grade, where reading to learn content becomes more central. Similarly, middle school requires students to assume more responsibility for long-term projects (Hoy & Gregg, 1994). These shifts may bring about a noticeable decline in grades for some students.

Test scores are also important to review. Comparing these scores to a student's current classroom performance can indicate that the student's difficulties are new ones, perhaps resulting from some environmental change that needs to be investigated more fully, or the comparison may show that the student has always found a particular skill area to be problemmatic. "In this situation, the current problems the student is experiencing indicate that the classroom demands have reached a point that the student requires more support to be successful" (Hoy & Gregg, 1994, p. 37).

Looking at Student Work

Often, an initial part of the assessment process includes examining a student's work, either by selecting *work samples* that can be analyzed to identify academic skills and deficits, or by conducting a *portfolio assessment*, where folders of the student's work are examined.

When collecting work samples, the teacher selects work from the areas where the student is experiencing difficulty and systematically examines them. The teacher might identify such elements as how the student was directed to do the activity (e.g., orally, in writing), how long it took the student to complete the activity, the pattern of errors (e.g., reversals when writing, etc.), and the pattern of correct answers. Analyzing the student's work in this way can yield valuable insight into the nature of his or her difficulties and suggest possible solutions.

Maintaining *portfolios* of student work has become a popular way for teachers to track student progress. By assembling in one place the body of a student's work, teachers can see how a student is progressing over time, what problems seem to be re-occurring, what concepts are being grasped or not grasped, and what skills are being developed. The portfolio can be analyzed in much the same way as selective work samples, and can form the basis for discussions with the student or other teachers about difficulties and successes and for determining what modifications teachers might make in their instruction.

Evaluators need to use a variety of tools and approaches to assess a child.

Prereferral Procedures

Many school systems recommend or require that, before an individualized evaluation of a student is conducted, his or her teacher meet with an assistance team to discuss the nature of the problem and what possible modifications to instruction or the classroom might be made. These procedures are known as *prereferral*. Prereferral procedures have arisen out of a number of research studies documenting faulty referral practices, including, among other practices, the overreferral of students who come from backgrounds that are culturally or linguistically different from the majority culture, those who are hard to teach, or those who are felt to have behavioral problems. According to Overton (1992), "the more frequent use of better prereferral intervention strategies is a step forward in the prevention of unnecessary evaluation and the possibility of misdiagnosis and overidentification of special education students" (p. 6).

This process recognizes that many variables affect learning; rather than first assuming that the difficulty lies within the student, the assistance team and the teacher will look specifically at what variables (e.g., classroom, teacher, student, or an interaction of these) might be affecting this particular student. Examining student records and work samples and conducting interviews and observations are part of the assistance team's efforts. These data-gathering approaches are intended to specify the problem more precisely and to document its severity. Modifications to the teacher's approach, to the classroom, or to student activities may then be suggested, attempted, and documented; if no progress is made within a specific amount of time, then the student is referred for an individualized evaluation. It is important for teachers to keep track of the specific modifications they attempt with a student who is having trouble learning or behaving, because these can provide valuable information to the assessment team at the point the student is referred for evaluation.

Observation

Observing the student and his or her environment is an important part of any assessment process. Observations in the classroom and in other settings where the student operates can provide valuable information about his or her academic, motor, communication, or social skills; behaviors that contribute to or detract from learning; and overall attitude or demeanor. Observing the student's environment(s) and his or her behavior within those environments can identify the factors that are influencing the student. For the information from observations to be useful, the team must first define the purpose for the observation and specify:

- Who will make the observation;
- Who or what will be observed;

- Where the observation will take place (observing a range of situations where the student operates is recommended);
- When the observation will take place (a number of observations at different times is also important); and
- How the observations will be recorded. (Wallace, Larsen, & Elksnin, 1992, p. 12).

Observations are a key part of some of the assessment methods that will be discussed later in this section, including curriculum-based assessment, ecological assessment, and task analysis. There are many ways in which to record what is observed; the box below lists and briefly describes the more common observational methods.

It is important to observe more than once, in a number of situations or locations, and at various times . . .

While observations can yield useful information about the student and his or her environments, there are a number of errors that can occur during observations and distort or invalidate the information collected. One source of error may come from the observer—he or she must record accurately, systematically, and without bias. If his or her general impression of the student influences how he or she rates that student in regards to specific characteristics, the data will be misleading and inaccurate. This can be especially true if the student comes from a background that is different from the majority culture. In such cases, it is important that the observer have an understanding of, and a lack of bias regarding, the student's cultural or language group. Often, multiple observers are used to increase the reliability of the observational information collected. All observers should be fully trained in how to collect information using the specific method chosen (e.g., time-sampling using a checklist) and how to remain unobtrusive while observing and recording, so as not to influence the student's behavior. It is also important to observe more than once, in a number of situations or locations, and at various times, and to integrate these data with information gathered through other assessment procedures. Decisions should not be made based upon a narrow range of observational samples.

Interviews

Interviewing the student in question, his or her parents, teachers, and other adults or peers can provide a great deal of useful information about the student. Ultimately, "an interview should be a conversation with a purpose" (Wallace, Larsen, & Elksnin, 1992, p. 16), with questions designed to collect information that "relates to the observed or suspected disability of the child" (p. 260). Preparing for the interview may involve a careful review of the student's school records or work samples, for these may help the assessment team identify patterns or areas of specific concern that can help determine who should be interviewed and some of the questions to be asked. *Parents*, for example, may be able to provide detailed information about the child's academic or medical background. It is especially important that they contribute their unique, "insider" perspective on their child's functioning, interests, motivation, difficulties, and behavior in the home or community. They may have valuable information to share about possible solutions to the problems being noted. *Teachers* can provide insight into the types of situations or tasks that the child finds demanding or easy, what factors appear to contribute to the child's difficulties, and what has produced positive results (e.g., specific activities, types of rewards) (Wodrich & Joy, 1986). The *student*, too, may have much to say to illuminate the problem. "All persons interviewed should be asked if they know of information

Common Observational Techniques

Anecdotal Records
The observer describes incidents or behaviors observed in a particular setting in concrete, narrative terms (as opposed to drawing inferences about feelings or motives). This type of record allows insight into cause and effect by detailing what occurred before a behavior took place, the behavior itself, and consequences or events that occurred after the behavior.

Event Recording
The observer is interested in recording specific behavioral events (such as how many times the student hits or gets out of his or her seat). A tally sheet listing the behaviors to be observed and counted is useful; when the observer sees the behavior of interest, he or she can simply make a tick mark on the sheet.

Duration Recording
This method usually requires a watch or clock, so that a precise measurement of how much time a student spends doing something of concern to the teacher or assessment team (e.g., talking to others, tapping, rocking) can be recorded.

Time-sampling Recording
With this technique observers count the number of times a behavior occurs during a specific time interval. Rather than observe for long periods of time and tally all incidences of the behavior causing concern, the observer divides the observation period into equal time units and observes and tallies behavior only during short periods of time. Based upon the time sampling, predictions can then be made about the student's total behavior.

Checklists and Rating Scales
A checklist usually requires the observer to note whether a particular characteristic is present or absent, while a rating scale typically asks the observer to note the degree to which a characteristic is present or how often a behavior occurs. There are many commercially available checklists and rating scales, but they may be developed locally as well.

Sources: Swanson & Watson, 1989, pp. 273-277; Wallace, Larsen, & Elksnin, 1992, pp. 12-13.

important to the solution of the academic or behavior problem that was not covered during the interview" (Hoy & Gregg, 1994, p. 44).

Organizing interview results is essential. Hoy and Gregg (1994) suggest that the interviewer might summarize the "perceptions of each person interviewed in a way that conveys similarities and differences in viewpoints" (p. 46), including:

- perceptions of the primary problem and its cause,
- what attempts have been made to solve or address the problem,
- any recent changes in the problem's severity, and
- student strengths and weaknesses.

Testing

Most assessments include tests, although this has become increasingly controversial. Many educators question the usefulness of the information gained from tests, for reasons that will be discussed in a moment. However controversial testing may be, this ***News Digest*** will nonetheless present a basic overview of the issues, because testing so often forms a part of the assessment process. Parents, teachers, and other professionals may find this basic information helpful (a) for understanding some of the controversy surrounding testing and, thus, what principles schools need to consider when using standardized tests, and (b) for identifying what resources of information about tests are available and what alternatives to testing exist.

Standardized tests are very much a part of the education scene, as we all know. Most of us have taken many such tests in our lifetime. Tests may be informal—meaning a measure developed locally—or they may be commercially developed, formal measures, commonly called standardized tests. Unlike informal tests, standardized tests have detailed procedures for administration, timing, and scoring. There is a wide variety of tests available to assess the different skill areas.

Some tests are known as *criterion-referenced tests*. This means that they are scored according to a standard, or criterion, that the teacher, school, or test publisher decides represents an acceptable level of mastery. An example of a criterion-referenced test might be a teacher-made spelling test where there are 20 words to be spelled and where the teacher has defined an "acceptable level of mastery" as 16 correct (or 80%). These tests, sometimes called content-referenced tests, are concerned with the mastery of specific, defined skills; the student's performance on the test indicates whether or not he or she has mastered those skills.

Other tests are known as *norm-referenced tests*. Scores on these tests are not interpreted according to an absolute standard or criterion (i.e., 8 out of 10 correct) but, rather, according to how the student's performance compares with that of a particular group of individuals. In order for this comparison to be meaningful, a valid comparison group—called a norm group—must be defined. A *norm group* is a large number of children who are representative of all the children in that age group. Such a group can be obtained by selecting a group of children that have the characteristics of children across the United States — that is, a certain percentage must be from each gender, from various ethnic backgrounds (e.g., Caucasian, African American, American Indian, Asian, Hispanic), from each geographic area (e.g., Southeast, Midwest), and from each socioeconomic class. By having all types of children take the test, the test publisher can provide information about how various types of children perform on the test. (This information—what type of students comprised the norm group and how each type performed on the test—is generally given in the manuals that accompany the test.) The school will compare the scores of the child being evaluated to the scores obtained by the norm group. This helps evaluators determine whether the child is performing at a level typical for, below, or above that expected for children of a given ethnicity, socioeconomic status, age, or grade.

Not all tests use large, representative norm groups. This means that such tests were normed using a group of individuals who were *not* representative of the population in general. For example, on one such test, the norm group may have included few or no African American, Hispanic, or Asian students. Because it is not known how such students typically perform on the test, there is nothing to which an individual student's scores can be compared, which has serious implications for interpretation of results.

Thus, before making assumptions about a child's abilities based upon test results, it is important to know something about the group to which the child is being compared—particularly whether or not the student is being compared to children who are similar in ethnicity, socioeconomic status, and so on. The more unlike the child the norm group is, the less valuable the results of testing will generally be. This is one of the areas in which standardized testing has fallen under considerable criticism. Often, test administrators do not use the norm group information appropriately, or there may not be children in the norm group who are similar to the child being tested. Furthermore, many tests were originally developed some time ago, and the norm groups reported in the test manual are not similar at all to the children being tested today.

The more unlike the child the norm group is, the less valuable the results will generally be.

Selecting an Appropriate Instrument. The similarity of the norm group to the student being tested is just one area to be carefully considered by the professionals who select and administer standardized tests. Choosing which test is appropriate for a given student requires investigation; it is extremely important that those responsible for test selection do not just use what is available to or "always used by" the school district or school. The child's test results will certainly influence eligibility decisions, instructional decisions, and placement decisions, all of which have enormous consequences for the child. If the child is assessed with an instrument that is not appropriate for him or her, the

data gathered are likely to be inaccurate and misleading, which in turn results in faulty decisions regarding that child's educational program. This is one of the reasons that many educators object vehemently to standardized testing as a means of making decisions about a student's strengths, weaknesses, and educational needs.

2. Investigate how suitable each test identified is for the student to be assessed and select those that are most appropriate. A particularly valuable resource for evaluating tests is the *Mental Measurements Yearbook* (Conoley & Kramer, 1992), which describes tests in detail and includes expert reviews of many tests. This yearbook is typically available in professional libraries for teachers, university libraries, and in the reference section of many public libraries. Publishers of tests generally also make literature available to help professionals determine whether a test is suitable for a specific student. This literature typically includes sample test questions; information on how the test was developed; a description of what groups of individuals (e.g., ethnic groups, ages, grade levels) were included in the "norm" group; and general guidelines for administration and interpretation.

Choosing which test is appropriate for a given student requires investigation.

Therefore, selecting instruments with care is vital, as is the need to combine any information gathered through testing with information gathered through other approaches (e.g., interviews, observations, dynamic assessment).

Given the number of standardized tests available today, how *does* the individual charged with testing select an appropriate test for a given student? Here are some suggestions.

1. Consider the student's skill areas to be assessed, and identify a range of tests that measure those skill areas. There are a variety of books that can help evaluators identify what tests are available; one useful reference book is *Tests: A Comprehensive Reference for Assessments in Psychology, Education, and Business* (3rd edition) by Sweetland and Keyser (1991). Another is *A Consumer's Guide to Tests in Print* (Hamill, Brown, & Bryant, 1992). Both books describe what each available test claims to measure, the age groups for which it is appropriate, whether it is group- and individually-administered (all testing of children with suspected disabilities must be individualized), how long it takes to administer the test, and much more. Additionally, the two NICHCY bibliographies—one for families and one for schools—that are available separately from this ***News Digest*** list many books on assessment which describe and critique a subset of the tests available in any given skill area. Taking advantage of the review information available on tests is a critical responsibility of all those charged with assessing students and making decisions about their education.

Some questions professionals consider when reviewing a test are:

- According to the publisher or expert reviewers, what, specifically, is the test supposed to measure? Is its focus directly relevant to the skill area(s) to be assessed? Will student results on the test address the educational questions being asked? (In other words, will the test provide the type of educational information that is needed?) If not, the test is *not* appropriate for that student and should not be used.
- Is the test reliable and valid? These are two critical issues in assessment. *Reliability* refers to the degree to which a child's results on the test are the same or similar over repeated testing. If a test is not reliable or if its reliability is uncertain—meaning that it does not yield similiar results when the student takes the test again—then it should not be used. *Validity* refers to the degree to which the test measures what it claims to measure. For example, if a test claims to measure anxiety, a person's scores should be higher under a stressful situation than under a nonstressful situation. Test publishers make available specimen sets that will typically report the reliability and validity of the test. This information may also be reported in books describing the test, in the *Mental Measurement Yearbook* (Conoley & Kramer, 1992), or in many of the books listed in the reference section of this ***News Digest*** or in the two NICHCY bibliographies on assessment (available separately from this document).
- Is the content/skill area being assessed by the test appropriate for the student, given his or her age and grade? (Scope and sequence charts that identify the specific hierarchy of skills for different academic areas are useful here.) If not, there is no reason to use the test.
- If the test is norm-referenced, does the norm group resemble the student? This point was mentioned above and is important for interpretation of results.
- Is the test intended to evaluate students, to diagnose the specific nature of a student's disability or academic difficulty, to inform instructional decisions, or to be used for research purposes? Many tests will indicate that a student has a disability or specific problem academically, but results will not be useful for instructional planning purposes. Additional testing may then be needed, in order to fully understand what type of instruction is necessary for the student.
- Is the test administered in a group or individually? By law, group tests are not appropriate when assessing a child for the presence of a disability or to determine his or her eligibility for special education.
- Does the examiner need specialized training in order to administer the test, record student responses, score the test, or interpret results? In most, if not all, cases, the answer to this question is *yes*. If the school has no one trained to administer or interpret the specific test, then it should not be used unless the school arranges for the student to be assessed by a qualified evaluator outside of the school system.
- Will the student's suspected disability impact upon his or her taking of the test? For example, many tests are timed tests, which means that students are given a certain amount of time to complete

items. If a student has weak hand strength or dexterity, his or her performance on a timed test that requires holding a pencil or writing will be negatively affected by the disability. Using a timed test would only be appropriate for determining how speed affects performance. To determine the student's actual knowledge of a certain area, a nontimed test would be more appropriate. It may also be possible to make accommodations for the student (e.g., removing time restrictions from a timed test). If an accommodation is made, however, results must be interpreted with caution. Standardized tests are designed to be administered in an unvarying manner; when accommodations are made, standardization is broken, and the norms reported for the test no longer apply.

- How similar to actual classroom tasks are the tasks the child is asked to complete on the test? For example, measuring spelling ability by asking a child to recognize a misspelled word may be very different from how spelling is usually measured in a class situation (reproducing words from memory). If test tasks differ significantly from classroom tasks, information gathered by the test may do little to predict classroom ability or provide information useful for instruction.

Limitations of Testing. Even when all of the above considerations have been observed, there are those who question the usefulness of traditional testing in making good educational decisions for children. Many educators see traditional tests as offering little in the way of information useful for understanding the abilities and special needs of an individual child. Martin Kozloff (1994) offers the following example to illustrate how rigid use and interpretation of tests can result in useful information being overlooked or misinterpreted.

> Ms. Adams: (Holding up a picture of a potato.) And this one?
> Indra: You eat it.
> Ms. Adams: No. It's a potato. Let's try another. (Holds up a picture of a duck.) What is this?
> Indra: Swimming.
> Ms. Adams: No. It's a duck. Say, "duck."
> Indra: Duck.
> Ms. Adams: Very good. (Still showing picture of a duck.) Now, what is this?
> Indra: Swimming! (p. 16)

Kozloff notes that:

> There are many competent ways to respond to "What is this?". Indra said what potatoes are for and what the duck was doing. Ms. Adams scores Indra's answers incorrect because the test Ms. Adams is using narrowly defines as correct those answers with an object-naming function. Thus, Ms. Adams underestimates the size of Indra's object-naming repertoire and does not notice the other functions of Indra's vocabulary. (Kozloff, 1994, pp. 16-17)

Another concern about the overuse of testing in assessment is its lack of usefulness in designing interventions. Historically, it has seemed as if tests have not been interpreted in ways that allow for many specific strategies to be developed. While scores help to define the areas in which a student may be performing below his or her peers, they may offer little to determine particular instruction or curricular changes that may benefit the child.

Traditional tests often seem to overlap very little with the curriculum being taught. This suggests that scores may not reflect what the child really knows in terms of what is taught in the actual classroom. Other concerns include overfamiliarity with a test that is repeated regularly, inability to apply test findings in any practical way (i.e., generating specific recommendations based on test results), and difficulty in using such measures to monitor short-term achievement gains.

There are those who question the usefulness of traditional testing in making good decisions for children.

The sometimes circular journey from the referral to the outcome of the assessment process is frustrating. The teacher or parent requests help because the student is having problems, and the assessment results in information that more or less states, "The student is having problems."

It may be, however, that it is not that the tests themselves offer little relevant information but, rather, that the evaluators may fail to interpret them in ways that are useful. If we only ask questions related to eligibility (e.g., does this child meet the criteria as an individual with mental disabilities?) or about global ability (e.g., what is this child's intellectual potential?), then those are the questions that will be answered. Such information is not enough, if the goal is to develop an effective and appropriate educational program for the student.

Other Assessment Questions

During the assessment process, we often ask questions such as:

- How can we help the child to do his or her work?
- How can we manage the child's behavior, or teach the child to manage his or her own behavior?
- How can we help the child to be neater, faster, quieter, more motivated?

As alluded to a moment ago, it may be that a different set of questions needs to be asked, questions that may be more effective in eliciting practical and useful information that can be readily applied toward intervention. Such questions might include:

- In what physical environment does the child learn best?
- What is useful, debilitating, or neutral about the way the child approaches the task?
- Can the student hold multiple pieces of information in memory and then act upon them?
- How does increasing or slowing the speed of instruction impact upon the child's accuracy?
- What processing mechanisms are being taxed in any given task?
- How does this student interact with a certain teacher style?

- With whom has the child been successful? What about the person seems to have contributed to the child's success?
- What is encouraging to the child? What is discouraging?
- How does manipulating the mode of teaching (e.g., visual or auditory presentation) affect the child's performance?

The two sets of questions above differ from each other in two important ways. Within the first set, there is a subtle assumption that the problem is known (e.g., we "know" that the child is not trying hard enough) and that the solution to the problem is all that is needed. The second set of questions, in contrast, is seeking information about the problem. The assessment is designed to find out what is keeping the child from trying harder or producing readable work. Also, the first set of questions tends to be more "child-blaming," while the other set attempts to understand more about the child's experience. Assuming one already "knows" the problem may result in fewer and less effective interventions. On the other hand, if we seek to understand "why" the child is having difficulty succeeding in school (e.g., he or she has trouble remembering and integrating information; fear of failure results in reduced classroom effort), we engage in an assessment process that seeks information about the problem and results in the identification of specific strategies to reduce the problem's negative impact on learning. To this end, assessment that goes beyond administering standardized tests and includes other evaluation methods is essential. In the remainder of this section, several valuable assessment methods will be briefly described. Resources of additional information are listed in the two NICHCY bibliographies on assessment available separately from this ***News Digest***.

Assuming one already "knows" the problem may result in fewer and less effective interventions.

Ecological Assessment

Ecological assessment basically involves directly observing and assessing the child in the many environments in which he or she routinely operates. The purpose of conducting such an assessment is to probe how the different environments influence the student and his or her school performance. Where does the student manifest difficulties? Are there places where he or she appears to function appropriately? What is expected of the student academically and behaviorally in each type of environment? What differences exist in the environments where the student manifests the greatest and the least difficulty? What implications do these differences have for instructional planning? As Wallace, Larsen, and Elksnin (1992) remark: "An evaluation that fails to consider a student's ecology as a potential causative factor in reported academic or behavioral disorders may be ignoring the very elements that require modification before we can realistically expect changes in that student's behavior" (p. 19).

Direct Assessment

Direct assessment of academic skills is one alternative that has recently gained in popularity. While there are a number of direct assessment models that exist (Shapiro, 1989), they are similar in that they all suggest that assessment needs to be directly tied to instructional curriculum. Curriculum-based assessment (CBA) is one type of direct evaluation. "Tests" of performance in this case come directly from the curriculum. For example, a child may be asked to read from his or her reading book for one minute. Information about the accuracy and the speed of reading can then be obtained and compared with other students in the class, building, or district. CBA is quick and offers specific information about how a student may differ from peers.

> Because the assessment is tied to curriculum content, it allows the teacher to match instruction to a student's current abilities and pinpoints areas where curriculum adaptations or modifications are needed. Unlike many other types of educational assessment, such as I.Q. tests, CBA provides information that is immediately relevant to instructional programming. (Berdine & Meyer, 1987, p. 33)

CBA also offers information about the accuracy and efficiency (speed) of performance. The latter is often overlooked when assessing a child's performance but is an important piece of information when designing intervention strategies. CBA is also useful in evaluating short-term academic progress. The resources on CBA which are listed in the NICHCY bibliographies on assessment (available separately from this ***News Digest***) offer detailed guidance on how to design assessments that are tied to the curriculum.

Dynamic Assessment

Dynamic assessment refers to several different, but similar approaches to evaluating student learning. Although these approaches have been in use for some time, only recently has dynamic assessment been acknowledged as a valuable means of gathering information about students (Lidz, 1987). The goal of this type of assessment "is to explore the nature of learning, with the objective of collecting information to bring about cognitive change and to enhance instruction" (Sewell, 1987, p. 436).

One of the chief characteristics of dynamic assessment is that it includes a dialogue or interaction between the examiner and the student. Depending on the specific dynamic assessment approach used, this interaction may include modeling the task for the student, giving the student prompts or cues as he or she tries to solve a given problem, asking what the student is thinking while working on the problem, sharing on the part of the examiner to establish the task's relevance to experience and concepts beyond the test situation, and giving praise or encouragement (Hoy & Gregg, 1994). The interaction allows the examiner to draw conclusions about the student's thinking processes (e.g., why he or she answers a question in a particular way) and his or her response to a learning

Dynamic assessment is a promising addition to current evaluation techniques . . . (and) may be particularly useful with students from minority backgrounds . . .

situation (i.e., whether, with prompting, feedback, or modeling, the student can produce a correct response, and what specific means of instruction produce and maintain positive change in the student's cognitive functioning).

Typically, dynamic assessment involves a test-train-retest approach. The examiner begins by testing the student's ability to perform a task or solve a problem without help. Then, a similar task or problem is given the student, and the examiner models how the task or problem is solved or gives the student cues to assist his or her performance. In Feuerstein's (1979) model of dynamic assessment, the examiner is encouraged to interact constantly with the student, an interaction that is called *mediation*, which is felt to maximize the probability that the student will solve the problem. Other approaches to dynamic assessment use what is called *graduated prompting* (Campione & Brown, 1987) where "a series of behavioral hints are used to teach the rules needed for task completion" (Hoy & Gregg, 1994, p. 151). These hints do not evolve from the student's responses, as in Feuerstein's model, but, rather, are scripted and preset, a standardization which allows for comparison across students. The prompts are given only if the student needs help in order to solve the problem. In both these approaches, the "teaching" phase is followed by a retesting of the student with a similar task but with no assistance from the examiner. The results indicate the student's "gains" or responsiveness to instruction—whether he or she learned and could apply the earlier instructions of the examiner and the prior experience of solving the problem.

An approach known as "testing the limits" incorporates the classic training and interactional components of dynamic assessment but can be used with many traditional tests, particularly tests of personality or cognitive ability (Carlson & Wiedl, 1978, 1979, as cited in Jitendra & Kameenui, 1993). Modifications are simply included in the testing situation—while taking a particular standardized test, for example, the student may be encouraged to verbalize before and after solving a problem. Feedback, either simple or elaborated, may be provided by the examiner as well.

Of course, dynamic assessment is not without its limitations or critics. One particular concern is the amount of training needed by the examiner to both conduct the assessment and interpret results. Another is a lack of operational procedures or "instruments" for assessing a student's performance or ability in the different content areas (Jitendra & Kameenui, 1993). Further, conducting a dynamic assessment is undeniably labor intensive.

Even with these limitations, dynamic assessment is a promising addition to current evaluation techniques. Because it incorporates a teaching component into the assessment process, this type of assessment may be particularly useful with students from minority backgrounds who may not have been exposed to the types of problems or tasks found on standardized tests. The interactional aspect of dynamic assessment also can contribute substantially to developing an understanding of the student's thinking process and problem-solving approaches and skills. Certainly, having detailed information about how a student approaches performing a task and how he or she responds to various instructional techniques can be highly relevant to instructional planning.

Task Analysis

Task analysis is very detailed; it involves breaking down a particular task into the basic sequential steps, component parts, or skills necessary to accomplish the task. The degree to which a task is broken down into steps depends upon the student in question; "it is only necessary to break the task down finely enough so that the student can succeed at each step" (Wallace, Larsen, & Elksnin, 1992, p. 14).

Taking this approach to assessment offers several advantages to the teacher. For one, the process identifies what is necessary for accomplishing a particular task. It also tells the teacher whether or not the student can do the task, which part or skill causes the student to falter, and the order in which skills must be taught to help the student learn to perform the task.

According to Bigge (1990), task analysis is a process that can be used to guide the decisions made regarding:

- what to teach next;
- where students encounter problems when they are attempting but are not able to complete a task;
- the steps necessary to complete an entire task;
- what adaptations can be made to help the student accomplish a task;
- options for those students for whom learning a task is not a possible goal (as described in Wallace, Larsen, & Elksnin, 1992, p. 14).

Task analysis is an approach to assessment that goes far beyond the need to make an eligibility or program placement decision regarding a student. It can become an integral part of classroom planning and instructional decision-making.

Outcome Based Assessment

Outcome-based assessment is another approach to gathering information about a student's performance. This type of assessment has been developed, at least in part, to respond to concerns that education, to be meaningful, must be directly related to what educators and parents want the child to have gained in the end. Outcome-based assessment involves considering, teaching, and evaluating the skills that are important in real-life situations. Learning such skills will result in the student becoming an effective adult. Assessment, from this point of view, starts by identifying what outcomes are desired for the student (e.g., being able to use public transportation). In steps similar to what is used with task analysis, the team then determines what competencies are necessary for the outcomes to take place (e.g., the steps or subskills the student needs to have mastered in order to achieve the outcome desired) and identifies which subskills the student has mastered and

which he or she still needs to learn. The instruction that is needed can then be pinpointed and undertaken.

Learning Styles

The notion of learning styles is not new, but seems to have revived in the past few years. Learning styles theory suggests that students may learn and problem solve in different ways and that some ways are more natural for them than others. When they are taught or asked to perform in ways that deviate from their natural style, they are thought to learn or perform less well. A learning style assessment, then, would attempt to determine those elements that impact on a child's learning and "ought to be an integral part of the individualized prescriptive process all special education teachers use for instructing pupils" (Berdine & Meyer, 1987, p. 27).

Some of the common elements that may be included here would be the way in which material is typically presented (visually, auditorily, tactilely) in the classroom, the environmental conditions of the classroom (hot, cold, noisy, light, dark), the child's personality characteristics, the expectations for success that are held by the child and others, the response the child receives while engaging in the learning process (e.g., praise or criticism), and the type of thinking the child generally utilizes in solving problems (e.g., trial and error, analyzing). Identifying the factors that positively impact the child's learning may be very valuable in developing effective intervention strategies.

Section Three:
THE PARENTS ROLE IN THE ASSESSMENT PROCESS

While designing, conducting, interpreting, and paying for the assessment are the school system's responsibilities, parents have an important part to play before, during, and after the evaluation. The purpose of this section is to provide parents with suggestions for the range of ways in which they might involve themselves in the assessment of their child. The extent to which parents involve themselves, however, is a personal decision and will vary from family to family.

Before the evaluation, parents:

- May initiate the evaluation process by requesting that the school system evaluate their child for the presence of a disability and the need for special education.
- Must be notified by the school, and give their consent, before any initial evaluation of the child may be conducted.
- May wish to talk with the person responsible for conducting the evaluation to find out what the evaluation will involve.
- May find it very useful to become informed about assessment issues in general and any specific issues relevant to their child (e.g., assessment of minority children, use of specific tests or assessment techniques with a specific disability).
- May need to advocate for a comprehensive evaluation—one that investigates all skill areas apparently affected by the suspected disability and that uses multiple means of collecting information (e.g., observations, interviews, alternative approaches).
- May suggest specific questions they would like to see addressed through the evaluation (see "Other Assessment Questions" on page 9).
- Should inform the school of any accommodations the child will need (e.g., removing time limits from tests, conducting interviews/testing in the child's native language, adapting testing environment to child's specific physical and other needs).
- Should inform the school if they themselves need an interpreter or other accommodations during any of their discussions with the school.
- May prepare their child for the evaluation process, explaining what will happen and, where necessary, reducing the child's anxiety. It may help the child to know that he or she will not be receiving a "grade" on the tests he or she will be taking but that the purpose behind any testing is to gather information to help the student succeed in school.

During the evaluation process, parents:

- Need to share with the school their insights into the child's background (developmental, medical, and academic) and past and present school performance.
- May wish to share with the school any prior school records, reports, tests, or evaluation information available on their child.
- May need to share information about cultural differences that can illuminate the educational team's understanding of the student (see Section Four).
- Need to make every effort to attend interviews the school may set up with them and provide information about their child.

After the evaluation, parents:

- Need to carefully consider the results that emerge from their child's evaluation, in light of their own observation and knowledge of the child. Do the results make sense in terms of the behaviors, skills, needs, and attitudes they have observed in their child? Are there gaps, inconsistencies, or unexpected findings in the results that parents feel are important to address, if a comprehensive picture of the student's strengths and needs is to be developed?
- May share their insights and concerns about the evaluation results with the school and suggest areas where additional information may be needed. Schools may or may not act upon parents' suggestions, and parents have certain recourses under law, should they feel strongly about pursuing the matter.
- Participate fully in the development of their child's Individualized Education Program (IEP), using information from the evaluation.

Section Four
ASSESSING STUDENTS WHO ARE CULTURALLY AND LINGUISTICALLY DIVERSE

It is a well-known fact that the demographics of American schools are changing. Many students come from ethnic, racial, or linguistic backgrounds that are different from the dominant culture, and this number is steadily increasing (National Center for Education Statistics, 1992). Much concern has been expressed in recent years about the overrepresentation of minority students in special education programs, particularly in programs for students with mild disabilities, and a great deal of research has been conducted to identify the reasons why. Many factors appear to contribute, including considerable bias against children from different cultural and linguistic backgrounds, particularly those who are poor (Harry, 1992). The style and emphasis of the school may also be very different from those found in the cultures of students who are racially or linguistically diverse. Because culture and language affect learning and behavior (Franklin, 1992), the school system may misinterpret what students know, how they behave, or how they learn. Students may appear less competent than they are, leading educators to inappropriately refer them for assessment. Once referred, inappropriate methods may then be used to assess the students, leading to inappropriate conclusions and placement into special education.

When students come from a nondominant culture or speak a native language other than English, care must be taken in how they are evaluated.

There is also a great deal of research and numerous court decisions (e.g., *Larry P. v. Riles*, 1979; *Guadalupe v. Tempe Elementary District*, 1972) to support the fact that standardized tests (particularly intelligence and achievement tests) are often culturally and linguistically biased against students from backgrounds different from the majority culture. On many tests, being able to answer questions correctly too often depends upon having specific culturally-based information or knowledge. If students have not been exposed to that information through their culture, or have not had the experiences that lead to gaining specific knowledge, then they will not be able to answer certain questions at all or will answer them in a way that is considered "incorrect" within the majority culture. This can lead to inappropriate conclusions about students' ability to function within the school setting.

Therefore, when students come from a nondominant culture or speak a native language other than English, care must be taken in how they are evaluated. "All professionals involved in the assessment process need to be aware that their beliefs and perceptions may not match those of the population they serve" (Hoy & Gregg, 1994, p. 65). Because most cognitive, language, and academic measures are developed using standards of the majority English-speaking culture, their use with students who are not from that culture may be inappropriate. It is, therefore, imperative that the evaluation team collect the majority of their information about the student in other ways, such as through interviews, observations, and approaches such as dynamic assessment, which has shown promise for use with minority students (Lidz, 1987). "Professionals must attend carefully to the overall picture of a child's background and performance," states Harry (1992), and adds that "assessment cannot be complete without an understanding of whether prior instruction has been adequate and appropriate" (p. 87).

To this end, Ortiz (1986) recommends that such students first undergo the *prereferral process* mentioned earlier. Many schools are moving toward requiring a prereferral process before any individualized evaluation is done. The purpose of the prereferral process is "to determine if appropriate and sufficient approaches have been attempted" (Wallace, Larsen, & Elksnin, 1992, p. 467). This allows the school to adjust instruction or make other classroom modifications and see if these changes address the problem being noted. The prereferral process includes:

- direct observation of the student in the regular classroom;
- analyzing how the student behaves and interacts verbally in different settings; and
- reviewing the methods of instruction that are used in the regular classroom.

It is also important to interview people who are familiar with the student, for these individuals can provide a wealth of information about his or her intents, adaptive behavior, how he or she processes information and approaches learning, language ability, and (in the case of students who are not native speakers of English) language dominance. Interviewers should be aware, however, that the differing culture and/or language of those being interviewed can seriously affect the nature and interpretation of information gathered. Some understanding of how individuals within that culture view disability, the educational system, and authority figures will be helpful in designing, conducting, and interpreting a culturally sensitive interview. [See Harry, 1992, for an interesting discussion of the traditional worldviews of the African American, Hispanic, Native American, and Asian cultures; she defines a group's "worldview" as its members' "underlying beliefs about humanity's purpose and place in the universe, beliefs that affect codes of personal and interpersonal behavior as well as attitudes to the health, life, and death of human beings" (p. 25).] It may be particularly useful to gather information from the home environment, which will

It is essential that (a variety of) assessment approaches be an integral part of collecting information about the (minority) student.

help the assessment team develop an understanding of the student within his or her own culture. To facilitate this, parents need to communicate openly with the school and share their insight into their child's behaviors, attitudes, successes and needs, and, when appropriate, information about the minority culture.

Before conducting any formal testing of a student who is a non-native speaker of English, it is vital to determine the student's preferred language and to conduct a comprehensive language assessment in both English and the native language. Examiners need to be aware that it is highly inappropriate to evaluate students in English when that is not their dominant language (unless the purpose of the testing is to assess the student's English language proficiency). Translating tests from English is not an acceptable practice either; the IDEA states that tests and other evaluation materials must be provided and administered in the child's primary language or mode of communication unless it is clearly not feasible to do so [34 CFR § 300.532(a)(1)]. If possible, the evaluator in any testing situation or interview should be familiar to the child and speak the child's language.

When tests or evaluation materials are not available in the student's native language, examiners may find it necessary to use English-language instruments. Because this is a practice fraught with the possibility of misinterpretation, examiners need to be cautious in how they adminster the test and interpret results. Alterations may need to be made to the standardized procedures used to administer tests; these can include paraphrasing instructions, providing a demonstration of how test tasks are to be performed, reading test items to the student rather than having him or her read them, allowing the student to respond verbally rather than in writing, or allowing the student to use a dictionary (Wallace, Larsen, & Elksnin, 1992, p. 471). However, if any such alterations are made, it is important to recognize that standardization has been broken, limiting the usefulness and applicability of test norms. Results should be cautiously interpreted, and all alterations made to the testing procedures should be fully detailed in the report describing the student's test performance. As mentioned earlier, it is also essential that other assessment approaches be an integral part of collecting information about the student.

A full discussion of the recommended procedures for evaluating students from culturally or linguistically diverse backgrounds is beyond the scope of this ***News Digest,*** yet it is a topic of great importance. We have listed many books and articles on the subject in the bibliographies on assessment we offer separately for families and for schools.

Section Five: PRIMARY AREAS OF ASSESSMENT

In this section, we will look in detail at the primary areas in which students are assessed, which are: intelligence, language, perceptual abilities, academic achievement, behavior, and emotional/social development. When the disability is related to a medically related condition (e.g., sensory deficit, orthopedic impairment, arthritis), assessment information from physicians or other medical practitioners needs to be included as well. More than one assessment technique should be used in any given area, and the assessment team should clearly understand that each area encompasses more than one ability.

In this section, we will look at what skills are involved in these traditional areas of assessment (e.g., intelligence, language, and so on) and how schools may collect information about how a student performs in each area. While standardized testing is often the default means of gathering information about a student, it is highly recommended that other methods be used as well, including interviews, observations, and methodologies such as ecological or dynamic assessment.

Intelligence

While a person's intelligence is typically measured by an intelligence test, there is considerable controversy over what, precisely, is meant by the term "intelligence." Binet, who was largely responsible for the development of the first intelligence test, viewed intelligence as a collection of faculties, including judgment, practical sense, initiative, and the ability to adapt to circumstances (Wallace, Larsen, & Elksnin, 1992). Thurman, in contrast, developed a multifactor theory of intelligence, which included such mental abilities as verbal, number, perceptual speed, reasoning, memory, word fluency, and spatial visualization. Wechsler, on the other hand, believed that intelligence was the ability of the person "to act purposefully, to think rationally, and to deal effectively with his environment" (Wechsler, 1958, p. 7, as cited in Wallace, Larsen, & Elksnin, 1992, p. 105).

It is important to know that different intelligence tests are based upon different definitions of what constitutes intelligence. As a result, different tests may measure different skills and abilities. It is critical, therefore, that administrators of such tests "be completely aware of an author's definition of intelligence when selecting and interpreting an intelligence test" and "to

view the scores as highly tentative estimates of learning ability that must be verified by other evidence" (Wallace, Larsen, & Elksnin, 1992, p. 106).

The theory underlying intelligence tests (e.g., how does one define intelligence or develop tests of intelligence?) is not the only controversy surrounding their use. How fairly they assess certain populations (e.g., minority children, persons with limited experience, children with severe language deficits), and whether or not such tests are reliable and valid (Elliott, 1987) are also areas of hot debate. In the past, intelligence measures have been misused, particularly with African American children, Native Americans, and non-English speaking children, who, based upon their scores, were placed in classes for those with mental retardation or with learning disabilities. However, given the many court cases involving standardized intelligence testing as a means of assessing minority children (e.g., *Diana v. State Board of Education*, 1970; *Covarrubias v. San Diego Unified School District*, 1971; *Larry P. v. Riles*, 1979; *Guadalupe v. Tempe Elementary District*, 1972), and given the strength and volume of advocates' protests, evaluators are now becoming more sensitive to issues of test bias, the importance of testing in a child's native language, the need for specialized training when administering and interpreting standardized tests, and the importance of combining any test scores with information gathered in other ways.

Issues related to the definition of "intelligence" and the "fairness" of using measures of intelligence also become less concerning if one knows the purpose for which the test is being used. Intelligence tests are most helpful (and probably most appropriate) when they are used to determine specific skills, abilities, and knowledge that the child either has or does not have and when such information is combined with other evaluation data and then directly applied to school programming.

There are a number of skills that an intelligence test appears to measure—social judgment, level of thinking, language skill, perceptual organization, processing speed, and spatial abilities. Questions that attempt to measure social judgment and common sense, numerical reasoning, concrete and abstract thinking, the ability to recognize similarities and differences between objects or concepts, and vocabulary and language skill (e.g., the ease with which a person can find words in memory) appear very dependent on experience, training, and intact verbal abilities. Perceptual organization, processing speed, and spatial abilities seem less dependent on experience and verbal skill.

Intelligence tests can also yield valuable information about a student's ability to process information. In order to learn, every person must take in, make sense of, store, and retrieve information from memory in an efficient and accurate way. Each of us can process certain kinds of information more easily than other kinds. The artist sees and reproduces accurate depictions of the world, while others struggle to produce stick figures. The musician creates beautiful sounds from a mixture of separate tones. The writer crafts words to create a mood. Others of us do none of these things well. In school, children need certain skills to function effectively. They must be able to listen attentively so that other movements, sounds, or sights do not distract them. They must be able to understand the words spoken to them. This often requires children to hold multiple pieces of information in memory (e.g., page number, questions to answer) and to act upon them. They must be able to find the words they need to express themselves and, ultimately, commit these words to paper. This involves another whole series of processing skills—holding a writing implement, coordinating visual and motor actions, holding information in memory until it can be transferred to paper, transforming sounds into written symbols, and understanding syntax, punctuation, and capitalization rules. They also must be able to interpret the nonverbal messages of others, such as a frown, a smile, a shake of the head. Equally important, they must do all of these things quickly and accurately and often in a setting with many distractions.

A thorough interpretation of an intelligence test can yield information about how effectively a child processes and retrieves information. Most individually administered intelligence tests can determine, at least to some degree, a child's ability to attend, process information quickly, distinguish relevant from less relevant details, put events in sequence, and retrieve words from memory.

How fairly (intelligence tests) assess certain populations . . . and whether or not such tests are reliable and valid . . . are areas of hot debate.

Kamphaus (1993) summarizes a number of research findings related to the use of intelligence tests:

1. Intelligence test scores are more stable for school-aged children than for preschoolers and more stable among individuals with disabilities than those without disabilities;
2. Intelligence test scores can change from childhood to adulthood;
3. It is likely that environmental factors, socioeconomic status, values, family structure, and genetic factors all play a role in determining intelligence test scores;
4. Factors such as low birth weight, malnutrition, anoxia (lack of oxygen), and fetal alcohol exposure have a negative impact on intelligence test scores; and
5. Intelligence and academic achievement appear to be highly related.

This last finding supports the notion that intelligence and achievement tests may not be so different from each other and that "intelligence tests may be interpreted as specialized types of

achievement measures" (Kamphaus, 1993, p. 65). This is consistent with the suggestion that intelligence tests may be best used to determine specific skills, abilities, and knowledge.

Language

Language provides the foundation upon which communication, problem solving, and expanding, integrating, analyzing, and synthesizing knowledge take place. Deficits in language, therefore, can have a profound impact on the ability of an individual to learn and function competently and confidently as he or she interacts in the world.

Language is complex and involves multiple domains—nonverbal language, oral language (i.e., listening and speaking), written language (i.e., reading and writing), pragmatic language (e.g., using language for a specific purpose such as asking for help), phonology, and audiology. How quickly a person can access words or ideas in memory further influences his or her use of language. A child who must struggle to find an appropriate term is at a great disadvantage in a learning and social environment. As he or she grapples to retrieve a word, others have moved on. The student may miss critical pieces of knowledge, connect incorrect bits of information in memory, and have an ineffective means of showing others all that he or she knows. Such problems can result in lowered levels of achievement and in feelings of confusion, helplessness, and frustration.

Language provides the foundation upon which communication, problem solving, and expanding, integrating, analyzing, and synthesizing knowledge take place.

It is clear how important language processing can be to a child's successful adaptation to the school environment and, therefore, it is an important area to be considered in the assessment process. Speech and language pathologists are specially trained professionals who, working with school psychologists and classroom teachers, are frequently the primary individuals gathering data related to a child's language functioning.

Bloom and Lahey (1978) divide language processes into three general categories: form, content, and use. Phonology, morphology, and syntax are all considered to be components of ***form***. The first of these processes, *phonology*, refers to the knowledge a person has of the sounds in the language. While the number of sounds that exist are limited, a nearly endless number of words can be constructed from these sounds. Awareness of the basic sound units of language appears important to a child's ability to quickly and accurately locate words in memory when speaking, comprehend oral sentences, and learn to read (Liberman & Shankweiler, 1987). It is important to note that the ability to blend or separate sounds (i.e., phonological processing ability) is often overlooked in the assessment process. This may be an unfortunate oversight, given its apparent importance to the reading process.

Morphology, the second form element, refers to the smallest meaningful unit of language. Morphology involves the stringing together of sounds (phonemes) and includes such structures as prefixes, suffixes, word endings that describe number (e.g., dog vs. dogs), and tense (e.g., walk vs. walked). *Syntax* refers to the rules used in combining words to make a sentence. As with the sounds of language (phonology), the rules of language are finite. The acquisition of syntax is also developmental.

While syntax determines the rules that guide how sentences are put together, such knowledge alone is not sufficient for constructing sentences. The meaning of words constrains what words may or may not be used together. For example, the sentence "I saw the house flying over the orchard" would make little sense, although it is syntactically correct. It is this aspect of language, the importance of meaning, that Bloom and Lahey (1978) refer to as ***content***. Content involves knowledge of vocabulary, the relationships between words, and "time-and-event" relationships (Swanson & Watson, 1989). The child must also be able to associate words with the correct environmental experience. It is generally expected that a child understands the meaning of more words than he or she can express at any point in time. As Swanson and Watson (1989) point out, when an individual appears able to express more information than he or she is able to receive and comprehend, it may suggest that he or she has difficulty in auditory input and processing.

Use, the final component in the Bloom and Lahey model, refers to "the pragmatic functions of language in varying contexts" (Swanson & Watson, 1989, p. 151). It views the child as an active "communicator" whose words and sentences are intentionally selected in relation to the effect the speaker wishes to have on a listener. The speaker needs to be able to (a) change what is said in some way when it is apparent that he or she is not being understood, (b) vary language use when talking with different groups (e.g., peers or adults), and (c) use language in a variety of functional ways (e.g., to begin or end a conversation). Thus, use (or pragmatics, as it is sometimes called) is a vital area to assess in language; to ignore how a student uses language is to ignore a basic element of language—that we communicate in a context, for a particular purpose or reason (Heward & Orlansky, 1992).

Assessing a Child's Language Abilities. The IDEA's regulations provide a definition of speech-language impairment as "a communication disorder such as stuttering, impaired articulation, a language impairment, or a voice impairment that adversely affects" a child's educational performance [34 CFR 300.7(b)(11)]. In more specific terms, a child with a speech disorder may have difficulty in *producing* sounds properly, speaking in a normal flow or rhythm, or using his or her voice in an effective way. A child with a *language* disorder would have

problems using or understanding the rules, sounds, or symbols that we use to communicate with each other. This relates to language form, content, and/or use, as discussed above (Heward & Orlansky, 1992). A child with a speech impairment, a language impairment, or both, would be eligible for services under the IDEA.

There are many standardized measures of speech and language ability. Some "provide a *comprehensive* view of all language functioning," while others "measure *specific* components of linguistic performance (for example, phonology, linguistic structure, or semantics)" (Wallace, Larsen, & Elksnin, 1992, p. 252). The range of tests and what they measure may be identified through consulting resource books on speech/language assessment or more general test references such as *Tests* (Sweetland & Keyser, 1991), or by contacting organizations such as the American Speech-Language-Hearing Association (ASHA) (listed under "Organizations" at the end of this issue).

It is important to realize, however, that "standardized diagnostic tests are generally insensitive to the subtleties of ongoing functional communication" (Swanson & Watson, 1989, p. 155). Therefore, in addition to or in place of standardized tests, a typical speech/language evaluation should include obtaining a language sample that seeks to capture how the student performs in an actual communication situation. Language samples can be obtained through checklists or observational recording systems, or through informally conversing with the student. Great care must be taken to ensure that assessment of students is culture-free and dialect-sensitive, as many children will speak nonstandard English or another language entirely. [The issue of cultural bias in language assessment is considered in *Topics in Language Disorders* (Terrell, 1983)]. Obtaining such a language sample from the student is often the responsibility of the speech-language pathologist.

Through interviews, observations, and teaching, teachers can also gather valuable information about a student's language use. By engaging in what is known as diagnostic teaching, the teacher can become an invaluable participant in the ongoing assessment and remediation of a child's language deficiencies. It is important, however, for teachers to be thoroughly familiar with the developmental milestones of normal language functioning.

Obtaining a case history of the child (in most cases, from the parents) can also be valuable in the initial stages of assessment. Knowing in detail how the child's language has developed can yield information relevant to the problem and includes gaining an understanding of the early stages of the disorder, any physical or emotional condition that may have been or be involved, whether the disorder occurs in other settings and, if so, how it manifests itself, and any insights the parents may have into how best to assess and work with their child (Wallace, Larsen, & Elksnin, 1992, p. 260).

It is also important to realize that the ability to receive and understand language, and to use language verbally, is in part dependent upon how well the body performs physically. Before embarking upon an extensive (and expensive) battery of tests, examiners should ensure that any apparent speech or language impairment is not actually the result of a hearing impairment which, in effect, prevents the child from hearing words clearly and learning to use or understand them. Similarly, many children with physical disabilities may not be able to speak clearly enough to be understood but, when provided with assistive technology (e.g., speech synthesizers, computers), may show themselves to be competent users of language.

Perceptual Abilities

Perceptual abilities determine how individuals perceive information and how they respond. These abilities can be subdivided into at least four general areas: visual-perceptual, auditory-perceptual, perceptual-motor skill, and attention. Assessing a student in these areas is intended to determine strengths and weaknesses in information and sensory processing and can help the assessment team gain an understanding of how the child learns best.

The idea of "perceptual deficits" has long been linked to learning disabilities. It is important to realize that research results in this area have been mixed and controversial, and offer only small support for including evaluation of perceptual abilities in any assessment battery or approach (Overton, 1992). Linguistic issues, rather than perceptual abilities, may more often explain learning deficits. Nevertheless, since assessing perceptual abilities continues to be part of the evaluation process at present, we will briefly discuss them below.

Before beginning an assessment of perceptual ability, the student's eyesight and hearing should be tested.

Visual-Perceptual Ability. Visual perception includes the ability to discriminate between two or more visual stimuli, locate a particular figure within a larger scene, and understand position in space. Perceptual skills include detecting specific colors, shapes, and sizes. In reading, it requires the ability to detect the visual features of a letter or word so that the 26 letters of the alphabet can be distinguished from each other. The student must also discriminate between ten written digits.

Auditory-Perceptual Ability. Auditory perception includes the ability to detect certain auditory features such as changes in volume, discrimination of vowel or consonant sounds, and nonphonemic sound discrimination (e.g., the sound of a bell from the sound of a buzzer). In a school setting, then, the student would need the ability to discriminate between different sounds, identify spoken words that are the same or different, and hear sounds in order.

Perceptual-Motor Ability. Most assessments include one or more measures of perceptual-motor ability. It has been an assumption of many educators that perceptual-motor or visual-motor problems are often associated with learning problems and, therefore, should be included in most assessment batteries (Salvia & Ysseldyke, 1991). Historically, tests of perceptual-

motor skill have been second only to intelligence tests in terms of use in the assessment of school-aged children. Tests of perceptual-motor skill or perceptual-motor integration most often ask students to copy geometric designs that are placed in front of them. This requires the child to see the design, attend to and remember the relevant features, and then carry out the motor actions necessary to reproduce the design on paper.

Attention. The ability to focus on a given activity for extended periods is important if a student is to take in information or complete the day-to-day tasks in school. Keogh and Margolis (1976) have suggested three phases of attention: the ability to (a) come to attention; (b) focus attention; and (c) maintain attention. The issue of "selective" attention must also be considered here. Students must be able to attend, *and* they must be able to sustain attention on the most relevant stimuli. For example, a student must be able to attend to the teacher's words rather than to his or her clothing. Difficulties in any of the three phases of attention can interfere with a student's ability to learn or share what he or she knows in a consistent fashion. While the ability to attend effectively is seldom assessed through a formalized instrument, information related to attention can be gathered through classroom observations and observations of test behaviors.

Assessing Perceptual Ability. As was mentioned above, assessing perceptual abilities is not without its controversies. There are certainly a number of issues that need to be considered when addressing this area.

The first issue relates to the importance of ensuring that a student's apparent perceptual difficulties are not actually the result of a lack of visual or auditory acuity (as opposed to a difficulty with processing stimuli). Before beginning an assessment of perceptual ability, then, the student's eyesight and hearing should be tested (Overton, 1992; Swanson & Watson, 1989). This can be part of the assessment process, with the school referring the student to the appropriate facilities for such screenings.

The second issue is related to the relevance of such measures to the goals of assessment. There has been little to suggest that direct training in perceptual skills improves academic performance (Salvia & Ysseldyke, 1991; Vellutino, 1979). If there is little applicability, then it seems reasonable to question whether formal tests of perceptual skill are necessary as part of the assessment battery.

The third issue is related to the validity and reliability of the perceptual test measures. There is some suggestion that tests purported to measure perceptual abilities may actually measure other factors such as language or verbal memory skill (Vellutino, 1979). Information gained from tests thought to measure perceptual processing may actually result in incorrect explanations for learning problems. This may lead those working with the child towards strategies that are not useful (perceptual training such as copying designs) and away from ones that may be helpful, such as training in phonological processing. There are also concerns that many of the instruments currently available do not meet acceptable standards of reliability and validity (Swanson & Watson, 1989, p. 217), making their use of questionable value.

Academic Achievement

Academic achievement refers to how well the child is performing in core skill areas such as reading, mathematics, and writing. Assessment batteries typically include an individual measure of academic achievement, although it is important to realize that standardized achievement tests may be inappropriate for use with immigrant or minority group children. Information about the child's placement (i.e., below, at, or above) in his or her peer group and knowledge about the specific skills the child possesses are important both for the planning and evaluation of instruction.

Reading. Reading is an extension of the language process. It provides a way for individuals to exchange information. Reading also represents the means by which much of the information presented in school is learned and is the academic area most often implicated in school failure.

Reading . . . is the academic area most often implicated in school failure.

Reading, like language, is an extremely complex process, a process that is, for many, so natural or fluent that many of the subskills are not recognized or identified as a part of the process. Identifying these subskills is important, however, if an adequate assessment in this area is to occur.

Prereading skills include:

- general language competence;
- understanding that reading is a means of exchanging ideas (e.g., the ability to "read" pictures);
- the ability to complete rhymes and identify words that do not rhyme;
- the ability to distinguish between verbal and nonverbal sounds, recognize when words are the same or different, and segment and blend language sounds; and
- the ability to store and retrieve sounds one has heard.

Having opportunities for abundant language experiences, while not a skill, is also important to the development of prereading and later reading ability.

Reading skills can be divided into two general categories: word recognition and comprehension. A number of skills are used when attempting to identify, pronounce, or retrieve a word. Four types of analyses can be used by the child: visual analysis (i.e., the use of visual features), contextual analysis (i.e., using the surrounding words for clues about a given word), phonological analysis (i.e., using information about the sounds in the word), and structural analysis (i.e., recognizing and giving meaning to specific word parts such as prefixes, suffixes, or syllables). Phonological analysis appears particularly important as children attempt to gain reading skill. It allows the child to decode (i.e., read) a word he or she has never seen before, either in isolation or in context. This is not possible with visual, contextual, or structural analysis alone. The ability, then, to engage in phonemic analysis is

important to becoming a proficient reader and, therefore, is an area that should be considered in any assessment of any child who is struggling with reading.

Gaining meaning from text (comprehension) is the most common goal of reading. The general approach of the reader (active or passive), use of prior knowledge, and contextual analysis are all skills that appear related to comprehension. The ability to grasp literal information and to predict, interpret, critically analyze, or create new ideas in response to a paragraph are examples of the use of context at the comprehension level. Listening comprehension also appears to be related to reading comprehension, particularly at the higher reading skill levels (Stanovich, 1982).

The assessment of reading, then, needs to address the ability of the child to recognize individual words and to comprehend text. Assessment instruments should be selected that assure that test content and test tasks are as similar as possible to school reading tasks. Both formal and informal assessment may be useful here. Informal measures may include asking the student to:

- read aloud, which permits the teacher to identify errors in decoding and to determine the student's fluency and accuracy when reading;
- answer questions after reading, to determine the student's ability to understand the main idea of the story, capture its details, or place events in sequence;
- paraphrase or re-tell the story in his or her own words;
- fill in missing words in a passage he or she has not read;
- identify which sentence out of several means the same thing as a sentence supplied by the teacher; and
- provide synonyms of selected words.

Mathematics. Another critical area of school achievement is that of mathematics. The terms "mathematics" and "arithmetic" are often used interchangeably but actually mean different things. *Mathematics* refers to the study of numbers and their relationships to time, space, volume, and geometry, while *arithmetic* refers to the operations or computations performed. Subskills related to mathematics include:

- problem-solving,
- the ability to perform mathematics in practical situations,
- performance of appropriate computational skills,
- use of mathematics to predict,
- understanding and use of concepts related to measurement,
- interpretation and construction of charts or graphs,
- ability to estimate,
- understanding and application of geometric concepts,
- ability to recognize the reasonableness of results, and
- computer knowledge (for more information, see Lerner, 1988; Reid & Hresko, 1981; Roth-Smith, 1991).

. . . asking the student to solve a problem and explain the steps used in the process . . . can be invaluable in providing insight into a student's mathematical reasoning.

For a student to learn and act on knowledge of mathematics, he or she must understand terms regarding amount or direction (i.e., language-based knowledge), understand that numbers stand for a quantity, hold multiple pieces of mathematical information in memory and perform mathematical operations (e.g., add, multiply) on them, and know that numbers can be manipulated in meaningful ways.

The assessment of mathematics should measure a student's ability in both calculation and reasoning (application). Like reading, an evaluation of mathematical understanding and performance should also be structured so that it closely matches the demands made on the child in the actual classroom situation. Assessment might begin by analyzing actual samples of the student's work and identifying specific errors and any apparent pattern to those errors. Curriculum-based assessment techniques are also useful, and can be combined with task analysis and error analysis to identify where, specifically, the student is having problems. Interviewing can be useful as well, and may include "asking the student to solve a problem and explain the steps used in the process" (Overton, 1992, p. 257). Such an approach can be invaluable in providing insight into a student's mathematical reasoning. Conducting several such interviews is important, however, to avoid drawing hasty conclusions about the nature of a student's difficulties. Observations can also provide productive information to the assessment team and should focus on student behavior during—and his or her approach to—written assignments, working at the chalkboard, and classroom discussions.

Written Language. Written language is a complex form of communicating that consists of three general areas: spelling, handwriting, and written expression or composition. Like reading, writing tasks are an important part of the school curriculum and are often utilized in evaluating a student's understanding of a given concept. Written language is directly tied to reading, listening, and speaking, and skills in all of these areas overlap.

Spelling has often been considered a difficult task (Henderson, 1985). In English, the difficulty arises because there is no one-to-one correspondence between letters and their representative sounds. This can cause problems for the reader and may cause even greater problems for the speller. In spelling there are even fewer cues to aid in recreating a spoken word in print. As Lerner (1988) explains:

> Several clues aid the reader in recognizing a word in print: context, phonics, structural analysis, and configuration. There is no opportunity, however, to draw on peripheral clues in reproducing a word. (p. 105)

Both language and reading experience appear to be important to the development of connections between letters and their sounds. Thus, knowledge of spelling patterns, analysis of word parts, and knowledge of syllable rules all need to be measured.

It is important to consider that any approach that does not require a child to independently reconstruct a word (e.g.,

one that simply asks a child to select a misspelled word from among a group of words) does little to give information about the child's ability to recreate accurate spelling in a sentence he or she is writing. Assessment of spelling is particularly well given to informal approaches such as curriculum-based measurement or interviews. A number of standardized, commercially available spelling tests are available as well.

Handwriting refers to the actual motor activity that is involved in writing. Most students are taught manuscript (printing) initially and then move to cursive writing. There are those who advocate that only manuscript or only cursive should be taught (Reid & Hresko, 1981). In truth, problems may appear among students in either system. Wiederhold et al. (1978) have suggested a number of areas which may be assessed related to both manuscript and cursive writing. The assessment of manuscript includes evaluating the position of the hand and paper, size of letters and the proportion of letters to each other, quality of the actual pencil lines, the amount and regularity of the slant of the letters, letter formation and alignment, letter or word spacing, and speed of production. Cursive writing can be considered according to many of the same qualities but should also include an evaluation of the way in which letters are connected.

Composition refers to the more creative parts of written expression. Alley and Deshler (1979) suggest three general areas that need to be addressed in any assessment of written expression:

- the student's attitude toward writing;
- ability of the individual to express content (e.g., skill in describing or reporting events, or in expressing views or feelings); and
- the student's ability to "craft" a paragraph (e.g., the student's ability to organize, sequence, choose effective words, use punctuation and capitalization, or take notes).

Both formal and informal measures of assessment of written expression are available and should be considered in a thorough evaluation. Analyzing work samples produced by the student can be particularly useful, as can interviewing the student regarding his or her perceptions of the writing process.

Behavior and Emotional and Social Development

Behavior—how a student conducts himself or herself in school—is often a key factor in educational performance. Certainly, behavior that is off-target academically or socially—inattention, being out of seat, talking too much, hitting or biting, skipping school—can detract from learning. When a student's behavior appears to be interfering with school performance and relationships with others, or when that behavior is maladaptive, bizarre, or dangerous, it becomes important to assess the student's behavior (when the behavior occurs, how often, and for what reasons) as well as his or her emotional and social development. Wallace, Larsen, and Elksnin (1992) "stress the need to take an *ecological* perspective when assessing a student's nonacademic behaviors in order to obtain a complete picture and examine the relationship between the behavior and the environment" (pp. 164-165).

Negative or inappropriate behaviors may occur for different reasons. One child may be disruptive in class because of attention deficit disorder. A second child may exhibit similar behaviors due to a mental illness, while another's inappropriate behavior may be linked to environmental factors such as his or her parents' recent divorce. Still another child may be disruptive only in one or two classes, for reasons associated with the way instruction is organized (e.g., a predominance of small group, large group, or self-paced activities) or something in that environment which the student finds disturbing. Thus, identifying *why* a child is exhibiting certain behaviors is an important part of the assessment process. The reasons why, if they can be determined, will influence whether or not the child is determined eligible for special education services and, if so, will certainly affect the nature of decisions made regarding educational and other interventions.

Assessing Problem Behavior. For children exhibiting signs of emotional, social, or behavioral problems, the assessment team will generally conduct a *behavioral assessment*. The goal of behavioral assessment is to gain an increased understanding of how environmental factors may be influencing the child's behavior. This includes identifying (a) what expectations and rules are established by significant others in the settings where the problem behavior occurs, and (b) what "specific variables in a particular situation . . . may be maintaining problem behaviors" (Berdine & Meyer, 1987, p. 151). This knowledge will then be used directly in designing intervention strategies. "Behavioral assessment depends on keen observation and precise measurement" (Swanson & Watson, 1989, p. 246). Assessment is tied to observing a specific situation (e.g., how the child responds during lunch or reading) at a particular point in time. It is important that a behavioral assessment involve multiple measures and take place in various settings (e.g., the classroom, school playground, chorus, home) and at different times during the day (e.g., morning, afternoon, and night). The ability to observe and record behavior, select the most appropriate places to observe the child, and find efficient and clear means of interpreting results are all critical in behavioral assessment. Collectively, the observations should provide information which:

(a) pinpoints and quantifies the nature of the behavior problem (including what variables in the environment are contributing to or maintaining the behavior);
(b) allows eligibility and placement decisions to be made;

The goal of behavioral assessment is to gain an increased understanding of how environmental factors may be influencing the child's behavior.

For minority students, it is imperative to develop an understanding of what types of behaviors are considered adaptive in the minority culture . . .

(c) illuminates what type of instruction or intervention is needed; and
(d) provides baseline information against which progress can be measured once intervention begins.

Interviews are also a useful means of gathering information about a child's behavior. Parents and significant others may be able to offer insight into the nature and history of the child's difficulties. The child may also be an excellent source of information. Of primary interest here is determining the child's "awareness of the problem behaviors and their controlling variables, degree of motivation to change, and skill at behavioral self-control" (Berdine & Meyer, 1987, p. 174).

Assessing Adaptive Behavior. Other aspects of behavior may be important to assess as well. *Adaptive behavior* is a frequent focus of assessment, and is a required area of assessment when a classification of mental retardation is being considered for a student. Adaptive behavior refers to "the effectiveness or degree with which individuals meet the standards of personal independence and social responsibility expected for age and cultural groups" (Grossman, 1983, p. 1). When assessing a person's adaptive behavior, examiners may investigate his or her strengths and weaknesses in a variety of different skill areas, such as: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. According to the American Association on Mental Retardation (1992), these are the skills with which individuals most often require assistance or some specialized support.

The IDEA specifies "deficits in adaptive behavior" as one of the two characteristics necessary for a student to be classified as having mental retardation (the other characteristic being "significantly subaverage general intellectual functioning" [34 CFR §300.7(b)(5)]. Measuring a student's adaptive behavior, however, should not be limited to only those students suspected of having mental retardation; this type of assessment has much to offer the decision-making associated with students with other disabilities as well, particularly in regards to IEP development and instructional and transition planning.

Many commercially-developed adaptive behavior instruments exist to help educators evaluate a student's adaptive skills. Using these instruments typically does not require the student to be involved directly; rather, examiners record information collected from a third person who is familiar with the student (e.g., parent, teacher, direct service provider) and who can report what types of adaptive skills the student has mastered and which he or she has not. Unfortunately, there is some concern that many of the available adaptive behavior scales do not meet the technical requirements of good instrumentation [for example, reliability and validity may not reported by the publisher (Berdine & Meyer, 1987; AAMR, 1992)] and that there may be bias inherent in assessing the behavior of children who are culturally or linguistically different from the majority culture. Therefore, care must be taken with the selection of the adaptive behavior scale to be used. It is also a good idea to use other methods to collect information about the student's skills, such as direct observation and interviewing the student. For minority students, it is imperative to develop an understanding of what types of behavior are considered adaptive (and, thus, appropriate) in the minority culture, before making judgments about the particular functioning of a student.

Assessing Emotional and Social Development. No child lives in a vacuum. His or her relative freedom from internal and external stressors, ability to interact with others comfortably, and ability to respond consistently and positively in the learning environment all are important for the child to benefit maximally from school experiences. In assessing a child's emotional and social adjustment, questions need to be answered related to the child's intrapersonal and interpersonal experience. Assessment of the child's *intrapersonal* world involves knowledge about how the child views him or herself, how the child responds emotionally, how much conflict or anxiety he or she is currently experiencing, the degree to which the individual believes that personal behaviors can actually make a difference in his or her own life, his or her tolerance for frustration, and general activity level. *Interpersonal* characteristics are related to how the individual views the world and other people. Such characteristics are developed in response to the child's experiences within the environment. If the child sees the world as a hostile place and views people as untrustworthy, negative interactive patterns and behaviors may emerge.

The development of the child's intrapersonal experience and interpersonal behaviors is, at least in part, related to the way basic physiological and psychological needs (e.g., to be fed, feel safe, belong, be productive, unique, empowered) are being met. If a child is abused, ignored, or neglected, there are often negative behavioral, cognitive, and emotional outcomes. Problem behaviors such as tantrums, aggression toward others, or withdrawal may result from the child's emotional and social turmoil. However, as was mentioned above, it is important to remember that negative behaviors may arise from vastly different reasons than experiences of abuse or neglect (e.g., biochemical or physiological factors).

There are many instruments available to assess a child's emotional and social functioning. Salvia and Ysseldyke (1991) suggest several ways in which personality variables may be measured. The use of Rating Scales was discussed above under "Behavioral Assessment" and is applicable here as well. A second approach, using *projective techniques*, asks students to respond to vague or ambiguous stimuli such as inkblots or pictures, draw pictures, or express themselves through the use of puppets or dolls. The responses are then interpreted by a person trained in such procedures. A third approach is to adminis-

ter personality inventories or questionnaires that vary in their focus. Some may measure self-concept or learning style, while others are intended to indicate the possible presence of mental illness. These latter instruments are generally lengthy and present the individual taking them with a substantial reading load, both in terms of how much there is to read and in terms of how complex and abstract many of the ideas are. Thus, many such inventories are not suitable for individuals with low literacy. Furthermore, as Berdine and Meyer (1987) remark, "Many of these measures suffer from technical inadequacies and yield esoteric results that are difficult to translate into treatment goals" (p. 144). For this reason, while information gathered through these instruments may help the assessment team understand the student more fully, information collected through approaches such as direct observation and interviews may be more useful and reliable.

Section Six: PUTTING IT ALL TOGETHER—INTERPRETING RESULTS

Clearly, a vast quantity of information can be collected about many aspects—virtually every aspect—of a student's functioning. How is all this information put together and utilized to make eligibility and educational decisions about and for the student?

The interpretation of assessment results relies greatly upon the skills and experience of the individuals involved in the assessment process and the degree to which they work together as a team, pooling findings and discussing implications in a multidisciplinary way. All professionals responsible for any aspect of the assessment should prepare a written report on their findings or be prepared to present this information orally at the meeting where eligibility is determined or the student's Individualized Education Program (IEP) is developed. The report should not merely state the student's raw or derived test scores or the statistical quantification of observed behavior (e.g., x number of "out-of-seats" in y minutes), but should extend to the implications that can be drawn from the scores or behavior. The educational recommendations and insights of the professional should also be included. It is very important that each report be stated in a way that allows others on the team, including parents and teachers, to understand what was found, what the results mean, and what the professional recommends. The use of specialized, technical vocabulary—jargon—often obscures meaning and should be avoided or explained in lay terms.

Data gathered from all assessment procedures then need to be related and synthesized. When the team looks individually and globally at information gathered from observations, previous school experiences, review of prior records, tests, interviews, daily work assignments, and so on, what picture emerges of the student's areas of strength and need? What information appears to be contradictory? Where is more information or detail needed about the student to assist either in diagnosis or in instructional planning?

It is important to remember that all assessment involves error. What emerges from the assessment process is not a "true" picture of the student but, rather, a patchwork of pictures that have captured the student at various moments in time. The more comprehensively the assessment was conducted—sampling or observing student behavior in different settings at different times, consultation with the family, interviewing those involved with the student, administering tests, ecologically assessing the student's environments, and so on—the more comprehensive the picture of the student should be and the more informed decision-making will be as well.

Interpretation of results, then, should not end with the statement, "No, this student is not eligible for special education" or "Yes, he or she *is* eligible." The data need to be directly useful to the educational team in identifying the *specific* areas in which the student needs special instruction or accommodation (or, at the least, the areas in which additional evaluation or diagnosis is necessary) and in suggesting what type of instruction or educational program might be appropriate.

Independent Educational Evaluation (IEE)

Parents may disagree with the results of the school's evaluation or feel that the school did not conduct the evaluation appropriately (e.g., tested a language minority student solely in English or based eligibility decisions upon the use of only one test). The IDEA gives parents the right to obtain an independent educational evaluation. Parents may ask the school to pay for the IEE; the school may do so willingly, or they may request a due process hearing to show that their evaluation was, indeed, appropriate. If the hearing officer's decision is that the school system's evaluation was inappropriate, then the IEE will be at public expense (the school system pays). If, however, the evaluation was appropriate, then the parents may still obtain an IEE but they must pay for it. Regardless of who pays for the IEE, the school is obligated to consider the results of the evaluation at the eligibility or IEP development meeting. (For more information on the IDEA's stipulations regarding IEEs, request a copy of NICHCY's *Questions and Answers About the IDEA.*)

Individualized Education Program (IEP)

The student's educational program is planned and developed by a multidisciplinary team of individuals and specified in the Individualized Education Program (IEP). Just as parents can

contribute to the assessment process, they have much to share during the meeting where the IEP is developed, including their own perceptions and preferences as to the skill areas that might best be emphasized with their child. Therefore, when the assessment team and parents sit down to discuss assessment results and plan the student's educational program, it is vital that the parents participate fully. Parent Training and Information Centers (PTIs), which exist in every state, may be able to assist parents in regards to the IEP process and strategies for effective participation. For parents who are not native speakers of English, it may be essential for the school to provide an interpreter, so that parents can understand what is being discussed and offer their own insights and suggestions.

It is beyond the scope of this ***News Digest*** to discuss the IEP process in any depth (if you need information on this topic, you may contact NICHCY and talk to one of the information specialists). Briefly, however, the evaluation team, or at least one individual knowledgeable about how the student was evaluated and what results were obtained, will attend the meeting to present and explain what has been learned through assessing the student. Using this information, the team will then discuss what type of educational program would be appropriate for the student and begin specifying this in the IEP.

SUMMARY

This ***News Digest*** has focused upon the assessment of school-aged children that is conducted (a) to determine if a child has a disability and is eligible for special services, and (b) to offer information that will drive educational programming.

Assessment is a complex process that needs to be conducted by a multi-disciplinary team of trained professionals and involve both formal and informal methods of collecting information about the student. While the team may choose to administer a series of tests to the student, by law assessment must involve much more than standardized tests. Interviews of all key participants in the student's education and observations of student behaviors in the classroom or in other sites should be included as well. To develop a comprehensive picture of the student and to develop practical intervention strategies to address that student's special needs, the team must ask questions and use assessment techniques that will help them determine the factors that are facilitating—and interfering with—the child's learning. Ecological assessment, dynamic assessment, curriculum-based assessment, learning styles inventories, and other less traditional approaches may be particularly helpful in answering such questions.

It is also important that assessment be an ongoing process. The process begins even before the student is referred for formal evaluation; his or her teacher or parent may have noticed that some aspect of the student's performance or behavior is below expectations and, so, requests an official assessment. After eligibility has been established and the IEP developed for the student, assessment should continue, through teacher-made tests, through ongoing behavioral assessment, or through incorporating curriculum-based assessment or task analysis into the classroom. This allows teachers and parents to monitor the student's progress towards the goals and objectives stated in his or her IEP. Thus, assessment should not end when the eligibility decision is made or the IEP is developed; it has great value to contribute to the daily, weekly, and monthly instructional decision-making that accompanies the provision of special education and related services.

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The references listed above were mentioned throughout this ***News Digest*** and are good sources of information on assessment. There are many more resources available on this subject. For a more extensive listing of the books and articles available, please refer to the NICHCY bibliographies on assessment, available separately from this ***News Digest.*** There is a bibliography designed specifically for families and one designed specifically for schools. Each lists selected books or articles available on:

- curriculum-based assessment;
- dynamic assessment;
- assessing students who are linguistically or culturally diverse; and
- assessing for specific disabilities or in specific skill areas (i.e., attention deficit disorder, behavior, hearing or visual impairments, intelligence, language, learning/reading disabilities, mental retardation, nonverbal individuals, and physical/multiple disabilities).

If you did not receive a bibliography with this publication, please contact NICHCY for a free copy of the bibliography appropriate to your needs.

ORGANIZATIONS

The organizations listed below are only a few of the many that provide services and information about disability issues to families and professionals. We have selected these organizations because they may be able to respond to questions about the assessment of specific disabilities or provide guidance about the IEP development process. When calling or writing an organization, it is always a good idea to be as specific as you can in stating your needs and concerns. This helps organizations provide you with information that is truly helpful and on target.

Clearinghouses and Information Centers

DB-Link, National Information Clearinghouse on Children Who are Deaf-Blind, 345 N. Monmouth Avenue, Monmouth, OR 97361. Telephone: (800) 438-9376; (800) 854-7013 (TTY).

ERIC Clearinghouse on Disabilities & Gifted Education, Council for Exceptional Children (CEC), 1920 Association Drive, Reston, VA 22091-1589. Telephone: (703) 620-3660; (800) 328-0272.

National Health Information Center, P.O. Box 1133, Washington, D.C. 20013-1133. Telephone: (301) 565-4167; (800) 336-4797.

National Information Center on Deafness (NICD), 800 Florida Avenue, N.E., Washington, D.C. 20002. Telephone: (202) 651-5051 (Voice); (202) 651-5052 (TT).

National Organization on Rare Disorders (NORD), 100 Route 37, P.O. Box 8923, New Fairfield, CT 06812-1783. Telephone: (800) 999-6673; (203) 746-6518; (203) 746-6927 (TT).

Other Organizations

American Association on Mental Retardation, 1719 Kalorama Road, N.W., Washington, DC 20009. Telephone: (800) 424-3688; (202) 387-1968.

American Foundation for the Blind (AFB), 15 West 16th Street, New York, NY 10011. Telephone: (800) 232-5463; (212) 620-2000 (Voice); (212) 620-2158 (TT).

American Occupational Therapy Association (AOTA), P.O. Box 1725, 1383 Piccard Drive, Rockville, MD 20849-1725. Telephone: (301) 948-9626; (301) 948-9626 (TT).

American Physical Therapy Association (APTA), 1111 North Fairfax Street, Alexandria, VA 22314. Telephone: (703) 684-2782.

American Psychological Association, 750 First Street N.E., Washington, DC 20002-4242. Telephone: (202) 336-5500.

American Speech-Language-Hearing Association (ASHA), 10801 Rockville Pike, Rockville, MD 20852. Telephone: (800) 638-8255; (301) 897-5700 (Voice/TT).

The Arc (formerly the Association for Retarded Citizens of the U.S.), 500 East Border St., Suite 300, Arlington, TX 76010. Telephone: (817) 261-6003; (817) 277-0553 (TT).

Association for Persons with Severe Handicaps (TASH), 11201 Greenwood Avenue, North, Seattle, WA 98133. Telephone: (206) 361-8870; (206) 361-0113 (TT).

Autism Society of America, 7910 Woodmont Avenue, Suite 650, Bethesda, MD 20814. Telephone: (800) 3-AUTISM; (301) 657-0881.

Children and Adults with Attention Deficit Disorder (CH.A.D.D.), 499 NW 70th Avenue, Suite 308, Plantation, FL 33317. Telephone: (305) 587-3700.

Council for Exceptional Children (CEC), 1920 Association Drive, Reston, VA 22091. Telephone: (703) 620-3660.

Epilepsy Foundation of America (EFA), 4351 Garden City Drive, Suite 406, Landover, MD 20785. Telephone: (800) 332-1000; (301) 459-3700.

Family Resource Center on Disabilities, 20 East Jackson Boulevard, Room 900, Chicago, IL 60604. Telephone: (800) 952-4199; (312) 939-3513; (312) 939-3519 (TT).

International Rett Syndrome Association, 8511 Rose Marie Drive, Fort Washington, MD 20744. Telephone: (301) 248-7031.

Learning Disability Association of America (LDA), 4156 Library Road, Pittsburgh, PA 15234. Telephone: (412) 341-1515; (412) 341-8077.

Muscular Dystrophy Association (MDA), 3561 East Sunrise Drive, Tucson, AZ 85718. Telephone: (800) 223-6666; (602) 529-2000.

National Alliance for the Mentally Ill (NAMI), 2101 Wilson Boulevard, Suite 302, Arlington, VA 22201. Telephone: (800) 950-NAMI; (703) 524-7600.

National Association of School Psychologists, 8455 Colesville Road, Silver Spring, MD 20910. Telephone: (301) 608-0500.

National Association of State Directors of Education, 1800 Diagonal Road, Suite 320, Alexandria, VA 22314. Telephone: (703) 519-3800; (703) 519-7008 (TT).

National Down Syndrome Congress, 1605 Chantilly Drive, Suite 250, Atlanta, GA 30324. Telephone: (800) 232-6372; (404) 633-1555.

National Down Syndrome Society, 666 Broadway, New York, NY 10012. Telephone: (800) 221-4602; (212) 460-9330.

National Easter Seal Society, 230 West Monroe Street, Suite 1800, Chicago, IL 60606. Telephone: (800) 221-6827; (312) 726-6200; (312) 726-4258 (TT).

National Head Injury Foundation, Inc., 1140 Connecticut Avenue, N.W., Suite 812, Washington, DC 20036. Telephone: (202) 296-6443.

National Spinal Cord Injury Association, 600 West Cummings Park, Suite 2000, Woburn, MA 01801. Telephone: (800) 962-9629; (617) 935-2722.

Orton Dyslexia Society, Chester Building #382, 8600 LaSalle Road, Baltimore, MD 21204. Telephone: (800) 222-3123; (410) 296-0232.

PACER Center, 4826 Chicago Avenue South, Minneapolis, MN 55417. Telephone: Outside of MN, (612) 827-2966; in MN, 1-800-537-2237.

Spina Bifida Association of America, 4590 MacArthur Boulevard, N.W., Suite 250, Washington, DC 20007. Telephone: (800) 621-3141; (202) 944-3285.

United Cerebral Palsy Associations, Inc., 1522 K Street, N.W., Suite 1112, Washington, D.C. 20005. Telephone: (800) 872-5827; (202) 842-1266.

LIST OF PUBLISHERS

The publishers listed below (in alphabetical order) are presented to help readers obtain the resources listed throughout this ***News Digest.*** If you are interested in obtaining any of the resources we've listed, it's a good idea to contact the publisher and find out the latest payment and ordering procedures. These addresses and phone numbers are, of course, subject to change without notice.

Allyn & Bacon, Order Processing Center, P.O. Box 11071, Des Moines, IA 50336-1071. 1-800-947-7700.

American Association on Mental Retardation, Publications Center, P.O. Box 25, Annapolis Junction, MD 20701-0025. Telephone: (301) 604-1340.

Auburn House: Contact Greenwood Publishing, 88 Post Road W., Box 5007, Westport, CT 06881. Telephone: 1-800-225-5800; (203) 226-3571.

Brooks/Cole, Wadsworth, Inc. Distribution Center, Customer Service, 7625 Empire Drive, Florence, KY 41042. Telephone: 1-800-354-9706.

Guilford Press, 72 Spring Street, New York, NY 10012. Telephone: 1-800-365-7006.

Harper Collins, 1160 Battery Street, San Francisco, CA 94111. Telephone: 1-800-328-5125.

Harvard University Press, Attention: Customer Service, 79 Garden Street, Cambridge, MA 02138. Telephone: 1-800-448-2242; (617) 495-2600.

Houghton Mifflin, Wayside Road, Burlington, MA 01803. Telephone: 1-800-225-1464.

Jai Press, 55 Old Post Road, No. 2, P.O. Box 1678, Greenwich, CT 06836. Telephone: (203) 661-7602.

John Wiley and Sons, Orders to: Eastern Distribution Center, 1 Wiley Drive, Somerset, NJ 08875-1272. Telephone: 1-800-225-5945.

Macmillan Publishing Company, 100 Front Street, Box 500, Riverside, NJ 08075-7500. Telephone: 1-800-257-5755.

Merrill, see Macmillan.

MIT Press, 55 Hayward Street, Cambridge, MA 02142. Telephone: (617) 625-8569; 1-800356-0343.

Paul H. Brookes Publishing Company, P.O. Box 10624, Baltimore, MD 21285-0624. Telephone: 1-800-638-3775.

Pro-Ed, 8700 Shoal Creek Boulevard, Austin, TX 78758. Telephone: 1-800-397-7633; (512) 451-3246.

Teachers College Press, P.O. Box 20, Williston, VT 05495. Telephone: 1-800-488-2665.

University of Nebraska Press, 901 N. 17th Street, Room 327, Lincoln, NE 68588-0520. Telephone: (402) 472-3581; 1-800-755-1105.

Wiley, see John Wiley and Sons, above.

28

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NICHCY thanks our Project Officer, Dr. Sara Conlon, at the Office of Special Education Programs, U.S. Department of Education, for her time in reading and reviewing this document and, as always, for her commitment to the Clearinghouse. We would also like to express our deep appreciation to the following individuals, who reviewed this document and offered many valuable and insightful suggestions for its revision: Dr. Harold Dent, Center for Minority Special Education, Hampton University, Hampton, Virginia; Dr. Stanley Klein, *Exceptional Parent*, Brookline, Massachusetts; Kris Schoeller, PACER Center, Minneapolis, Minnesota; and Deborah Leuchovius, also of the PACER Center. And lastly, we would like to thank the author, Dr. Betsy Waterman, State University of New York at Oswego, for dedicating her time and efforts to the creation of this ***News Digest.***

Project Staff

Project Director ..... Suzanne Ripley
Deputy Director ..... Richard L. Horne, Ed.D.
Editor ..... Lisa Küpper
Author ..... Betsy B. Waterman, Ph.D.

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AED

Academy for Educational Development

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The Academy for Educational Development, founded in 1961, is an independent, nonprofit service organization committed to addressing human development needs in the United States and throughout the world. In partnership with its clients, the Academy seeks to meet today's social, economic, and environmental challenges through education and human resource development; to apply state-of-the-art education, training, research, technology, management, behavioral analysis, and social marketing techniques to solve problems; and to improve knowledge and skills throughout the world as the most effective means for stimulating growth, reducing poverty, and promoting democratic and humanitarian ideals.

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